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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,334	12/06/2001	Lin Xu	4208-4057	3436

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EXAMINER

AVELLINO, JOSEPH E

ART UNIT PAPER NUMBER

2143

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/008,334	Applicant(s) XU ET AL.	
	Examiner Joseph E. Avellino	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-28 are pending in this application.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 26, 2005 has been entered.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2, 6, 8, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The cited claims recite that the change in the composition of the group does not result in there being no terminals in the reception group. The specification does not enable one of ordinary skill this particular feature. If this is an oversight by the

Office, Applicant is kindly requested to distinctly point out where this particular feature of the system can be found.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Exemplary claim 1 recites the limitation "the service corresponding to said reception group" which lacks antecedent basis. Correction is required.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims **1-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst et al. (U.S. Patent Number **6,131,123**) hereinafter referenced to as Hurst in view of Khan et al. (U.S. Patent Application Publication Number **US 2002/0143951 A1**)

Hurst taught an efficient message distribution to subsets of large computer networks using multicast for near nodes and unicast for far nodes. The sending computer determines the circumstances under which a combination of multicast and unicast

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messages are efficient by determining that many recipient computers are near the sending computer and that few recipient computers are far. See the **abstract**.

Khan taught a method and system for sending multicast information to a user comprising agents, network programs that reside on multicast-enabled computer. The agents receive multicast data packets sent to members of a multicast group and repackage the multicast information into a unicast data packet and forward the unicast data to a client registered with the agent. Clients may register with an agent by sending an IGMP join message. See the **abstract**.

Regarding claim **1-12**, Hurst taught a computer system that that determines whether a subset of a reception group should receive said service via a unicast link or via a multicast link (**abstract, column 4 lines 3-12, column 5 lines 56-63**), and further taught determining the suitability of the option (**column 7 lines 1-47 and column 8 lines 54-65**).

Hurst's disclosure is embodied in a computer system comprising a memory, a processor and program code wherein the program code stored in the memory is to be executed by the processor (**column 4, lines 35-53**) for achieving the steps of the invention. Note that the above limitations depicts in a general fashion a general purpose computer architecture well known in the art at the time of the invention to be

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used to perform methods steps and typically called computer, server, IBM compatible PC or the like.

Hurst did not expressively disclose forwarding to a reception group; and performing determination steps based on a change in the cellular distribution. However, Hurst disclosure performs determination steps for every message making different determinations for different compositions composition of the multicast group (**column 5, lines 57-63**).

Khan taught the use of agents (**135**) that forward unicast data packet to a client registered with the agent in **paragraph 0012**. Khan expressively taught techniques for "New Client Joining Multicast Group" and "Client Leaving Multicast Group" [**0029-0033**] effectively depicting a way to update the multicast group membership.

Khan taught "upon a change in the composition of the reception group or in the cellular distribution of the reception group" as a mechanism for detecting a change in the composition or distribution of the reception groups and triggering an action in **paragraph 0033**, in particular in **lines 4-20**, wherein Khan recites:

"For example, a CISCO multicast router may **periodically transmit** a client membership **query message** in order to **determine which multicast groups have members** on the router's attached networks. As a multicast client, the agent will be a multicast member on a router's attached networks, such as a CISCO router's attached network as mentioned in the example. This router query message may cause the agent to poll or query its attached clients (i.e., the unicast clients for whom the agent has been designated to provide multicast service). **If an attached unicast client does not respond** to the agent's query message, the agent may **stop** forwarding multicast packets to the client. If an attached unicast client responds to the agent's query message but does not include a multicast group in its response

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message, the agent may **stop** forwarding multicast packets from the omitted multicast group to the client. Where a router query message causes an agent to poll or query its attached clients, the agent may respond to the router query message according to the responses the agent received from its attached clients. In this example, **the agent may respond using an IGMP report message to let the router know which multicast groups it wants to receive packets from.** The agent may also periodically, without initiation by a router membership query message, poll or send a query to its attached unicast clients to determine which multicast groups the agent needs to belong to and to whom the agent needs to forward information from those multicast groups."
(emphasis added)

Hurst and Khan taught inventions in the same field of endeavor, related to multicast and unicast data transmission to improve network resources utilization. See "FIELD OF INVENTION" in Hurst and Khan. Note that distributing a message to a subset of clients defines multicasting.

It would have been obvious to one of ordinary skill in the art working with Hurst at the time the invention was made to modify the system of Hurst with the teachings of Khan. Hurst motivated the exploration of the art of multicasting and unicasting in **column 1 lines 19-46**. Khan motivated the exploration of the art of multicasting and unicasting in paragraphs **0002, 0003, 0005 and 0007**. This modification would have improved Hurst disclosure with the teachings of Khan **[0012]** providing a system that sends or forwards a multicast or a unicast message, using a forward agent. Furthermore, **Khan** effectively taught that at any time the system can determine the need to change the transmission scheme (e.g. if the client does not respond) and trigger an action that changes the transmission scheme (e.g. stopping forwarding to such client

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or agent) which is commensurate with *“upon a change in the composition of the reception group or in the cellular distribution of the reception group”* (Khan: paragraph 0033). Hurst taught “deciding whether a subset of said reception group of said reception group should receive said service via a unicast link or via a multicast link”, for example, in **column 5, lines 57-63 and column, lines 1-14 and 35-47**. Hurst explicitly taught a succession of steps wherein the test step 304 is performed prior the sending step 306. Since any change in the organization may be an opportunity for optimizing transmission burden in the network (a desirable feature taught, for example, by Hurst in **column 4, lines 4-23**), one of ordinary skill in the art would have used the teachings of Khan ([0033]) to trigger the decision mechanism of Hurst (**column 5, lines 57-63 and column, lines 1-14 and 35-47**). Therefore, Hurst modified by Khan taught *upon a change in the cellular distribution of the reception group or upon a change in the composition of the reception group* (Khan: 0033), *deciding whether a subset of said reception group of said reception group should receive said service via a unicast link or via a multicast link* (Hurst: **column 5, lines 57-63 and column, lines 1-14 and 35-47**).

Regarding the limitation *“selecting from among available cellular distributions for said reception group”*, this limitation was taught by Hurst in **column 9, lines 8-26**, wherein a description of **figure 5 (5A and 5B)** is provided. This fragment of Hurst described measuring a relation between reachable nodes and the reachable interested nodes based one of a plurality of “possible value of the TTL parameter”, which in turn is used to determining the reachable nodes; therefore, each change in the TTL parameter

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produce a different set of reachable nodes which is commensurate with a different distribution for said reception group as claimed.

3. Claims **13-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst et al. (U.S. Patent Number **6,131,123**) hereinafter referenced to as Hurst in view of Khan et al. (U.S. Patent Application Publication Number **US 2002/0143951 A1**) further in view of Marzo et al. (Multicast Algorithms Evaluations Using an Adaptative Routing in ATM Networks) hereinafter referenced to as Marzo and further in view of Stanforth (U.S. Patent Application Publication No. **US 2002/0058502 A1**) hereinafter referenced to as Stanforth.

Marzo taught multicast algorithms for routing in ATM networks. Marzo describes that for each new call the network must select a path that has sufficient bandwidth available to support the new connection. Marzo described bandwidth considerations, connection acceptance control and routing, adaptative routing with pre-evaluated tables and multicast issues as well as cost analysis. See the **abstract**.

Stanforth taught an ad-hoc, peer-to-peer radio access system for cellular communications systems and described in the background that spectral efficiency is a key factor. The fact that this information was described in the background of an application related to improving efficiency of data network transmission is evidence that

the importance of such factor was well known in the art at the time of the invention. See the **abstract and the background of the invention**.

Regarding claim **13-16**, Hurst modified by Khan taught the invention substantially as claimed. However the combination of Hurst and Khan did not expressively disclose the taking into account the bandwidth and the spectrum efficiency factor of each of each access system and per-unit-cost of bandwidth.

Marzo, in the same filed of invention, taught taking into account the bandwidth (**page 2/7 paragraph 3**). Marzo taught the importance and use of cost measures to determine optimal routes (**page 5/7**).

Stanforth taught the importance of considering spectral efficiency as a key economic factor in wireless communications because of the limited availability and high costs of spectrum **[0005]**.

Hurst, Khan, Marzo and Stanforth disclosed information in the same field of endeavor, related to improve scarce network resources utilization.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify the combined system of Hurst and Khan with the teachings of Marzo and Stanforth. Motivation to combine is found in Hurst and Khan

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disclosures and both motivated the exploration of the art of multicasting and unicasting (see **column 1 lines 19-46 0002 in Hurst; and 0003, 0005 and 0007 in Khan**), in addition, Hurst motivated the exploration of the art of solving excessive message traffic throughout the computer network (**column 1 lines 35-46, column 2 lines 54-57 and column 8 lines 54-65**). This combination would have improved the combination of Hurst and Khan, in order to provide a system that more accurately determines optimal transmission routes by taking into account bandwidth costs and spectral spectrum efficiency (see **page 5/7 in Marzo and [0005] in Stanforth**).

Regarding claims **17 and 18**, Hurst taught considering the percentage of terminals using the link that would be served using the bandwidth (**fig. 3, column 4 lines 5-12, column 5 lines 54-63 and column 6 lines 1-10**). One of ordinary skill in the art would understand that the term 'few' needs to be expressed in the form of mathematical calculations in order to be interpreted by a processor executing a computer executable readable medium and using average or percentage calculation is a matter of choice in order to provide a simple measure representing what is few or more. Mathematical calculations are inherent in the determination of 'few'.

Regarding claims **19-28**, Khan taught the use of IGMP join message **[0027-0030]**, which by definition includes: a) group address (networks available), b) a designated router or a way to determine a designated router; and c) the multicast address that

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identifies a particular transmission session, (session by definition have a start time and an ending time).

Response to Argument

Applicant's arguments submitted October 26, 2005 have been fully considered but are not persuasive.

1. In the remarks Applicant argues, in substance, that (1) Kahn fails to teach any consideration of cellular distribution that a terminal changes its physical location such that there is a change in the cells that it has a relationship with, thereby changing the cellular distributions of the reception groups to which it belongs, and (2) Kahn does not disclose that the change in cellular distribution does not result in there being no terminals in the reception group.

2. As to point (1) In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. terminal changes its physical location such that there is a change in the cells that it has a relationship with, thereby changing the cellular distributions of the reception groups to which it belongs) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3. As to point (2) Applicant is misconstruing the use of the passage of Kahn. Even though a client leaves a multicast group, this does not necessarily mean that there are more clients in the multicast group, if and only if a client does not respond, then it is removed from the group. If, for example 10 clients are in the group, and three do not respond to the multicast router membership request, then only those three are removed, not all 10 as Applicant is construing. By this rationale, the rejection is maintained.

Conclusion

1. Applicant employs broad language, which includes the use of word, and phrases, which have broad meanings in the art. In addition, Applicant has not argued any narrower interpretation of the claim language, nor amended the claims significantly enough to construe a narrower meaning to the limitations. As the claims breadth allows multiple interpretations and meanings, which are broader than Applicant's disclosure, the Examiner is forced to interpret the claim limitations as broadly and as reasonably possible, in determining patentability of the disclosed invention. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir.1993). Failure for Applicant to significantly narrow definition/scope of the claims and supply arguments commensurate in scope with the claims implies the Applicant intends broad

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interpretation be given to the claims. The Examiner has interpreted the claims with scope parallel to the Applicant in the response, and reiterates the need for the Applicant to more clearly and distinctly, define the claimed invention.

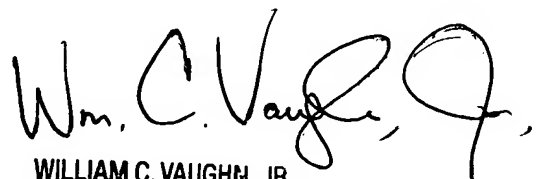
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph E. Avellino whose telephone number is (571) 272-3905. The examiner can normally be reached on Monday-Friday 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JEA
February 7, 2006



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PRIMARY EXAMINER